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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,118	09/04/2001	Takaharu Hutamura	11-058	1726

23400 7590 11/07/2003

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EXAMINER	
NGUYEN, DANNY	
ART UNIT	**PAPER NUMBER**
2836	

DATE MAILED: 11/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/944,118	HUTAMURA ET AL.	
	Examiner	Art Unit	
	Danny Nguyen	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☒ Claim(s) *16,17,23 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The corrected prior art figure 9 filed 9/9/2003 is accepted.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 6, 11 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claims 16, 17, 23, 24 are objected to because of the following informalities: In claims 16, 17 and 23, 24 on pages 4 and 5, the phase "no current flows through either the high side switching circuit or the low side switching circuit is incorrect. To switch a switch, one must provide some current, even for FETs. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1- 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eto et al (USPN 6,201,378) in view of the admitted prior art (APA).

Regarding to claims 1, 6, 11, 16-19, 23-26, Eto et al disclose a drive circuit (such as shown in fig. 12) comprises a high-side switching circuit (24a and 50a) connected between power supply line (Vcc); a low-side switching circuit (24b and 50b) connected in series with the high-side switching circuit through an output terminal (Vpr); a voltage detector (comprising resistors 6a-8a) detecting a voltage appearing at the output terminal (Vpr), wherein the low-side switching circuit is controlled to be turned off when the voltage detected by the voltage detector is lower than the predetermined value of the switching element (see col. 24, lines 28-52), and wherein the high-side switching circuit is turned off when the voltage detected by the voltage detector is higher than a predetermined threshold (see col. 24 and 25, lines 53-11). Eto et al do not disclose the output (Vpr) connected to a switching element. APA discloses a switching element (4 shown prior art fig. 10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the circuit of Eto et al with a switching element as taught APA in order to improve the switching function.

Regarding to claims 5, 10, 15, Eto et al discloses the voltage detector is implemented by a voltage divider (resistors 6a-8a).

Regarding to claims 2, 3, 12, Eto et al disclose the low side switching circuit includes an output transistor (24b), a pre-driver (57 and 55) a comparing circuit (56 and 57) comparing the output voltage (Vpr) detected by the voltage detector (voltage divider 6a-8a) with the off-decision voltage (Vref1), a logic circuit (50b) controlling an operation of the pre-driver on a result of comparison.

Regarding to claim 4, Eto et al disclose the comparing circuit includes a decision transistor (56) having a control terminal coupled to the output voltage detector.

Regarding to claims 7, 8, 13, 15, Eto et al disclose the high side switching circuit includes an output transistor (24a), a pre-driver (51 and 53) a comparing circuit (52 and 53) comparing the output voltage (Vpr) detected by the voltage detector (voltage divider 6a-8a) with the off-decision voltage (Vref2), a logic circuit (50a) controlling an operation of the pre-driver on a result of comparison.

Regarding to claims 9, 13, Eto et al disclose the comparing circuit includes a decision transistor (52) having a control terminal coupled to the output voltage detector.

Regarding to claims 20, 21, 22, Eto et al discloses the low side and high side are MOSFET transistor, but do not disclose the transistors are bipolar. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the low side and high side transistors of Eto et al with bipolar transistors as taught APA in order to improve the speeding of the transistors.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danny Nguyen whose telephone number is (703)-305-5988. The examiner can normally be reached on Mon to Fri 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (703)-308-3119. The fax phone numbers

for the organization where this application or proceeding is assigned are (703)-872-9318 for regular communications and (703)-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

DN

DN
November 3, 2003

BRIAN SIRCUS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800